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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER				
MCAVOY, ELLEN M				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/091,394

**Applicant(s)**

YOKOUCHI ET AL.

**Examiner**

Ellen M. McAvoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submissions, amendments to the claims and remarks, filed on 05 December 2007, have been entered.

***Claim Rejections - 35 USC § 112***

Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a NEW MATTER rejection. There is no support in the specification for the amendment to claim 18 where "the amount of the pH adjustor is 0.01". Applicants note in the remarks filed 05 December 2007 that support is found in Table 1 at page 49 of the substitute specification. However, the amount of 0.01 weight % is for Comparative Example 53, and not for an Example within the scope of the invention. The lowest amount in Table 1 for an Example within the scope of the invention is 0.5 weight % for the pH adjustor component.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokouchi et al (JP-A-9-169989) in view of Heimann et al (6,010,984).

Applicants' arguments filed 05 December 2007 have been fully considered but they are not persuasive. As previously set forth, Yokouchi et al ["Yokouchi"], which is the priority document of U.S. Patent No. 5,840,666, teach a rolling bearing which may be used in electrical parts and auxiliary engine equipment for automobiles having sealed therein a grease composition comprising a base oil, a urea thickener, and an inorganic filler having an average particle size of not greater than 2 micrometers. See column 3, lines 15-19, of the US patent. The inorganic filler includes metal oxides (e.g., SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, MgO, TiO<sub>2</sub> and ZnO), metal nitrides, metal carbides, clay minerals, diamond, and solid lubricants such as MoS<sub>2</sub>, graphite, BN, and WS<sub>2</sub>. The inorganic filler is preferably used in an amount of 0.05 to 15% by weight. See column 4, lines 21-23. The base oil preferably has a kinetic viscosity of 10 to 400 mm<sup>2</sup>/sec, particularly 20 to 250 mm<sup>2</sup>/sec, especially 40 to 150 mm<sup>2</sup>/sec at 40°C. See column 5, lines 53-60. The grease composition can further contain one or more additives in a total amount of up to 20% by weight as set forth in column 6, lines 35-39. Suitable additives include amine antioxidants and dithiophosphate compounds which act as extreme pressure agents and as antioxidants. While

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Yokouchi teaches the addition of further additives, Yokouchi differs from the instant claims in not teaching the addition of a pH adjustor, but the prior art does teach the addition of amine compounds which act as pH adjustors in applicants' claimed invention.

Heimann et al ["Heimann"] teach lubricant and grease compositions which contain base lubricating oils and a thickener including diurea compounds which impart corrosion and microbial resistance, and a high dropping point as set forth in column 2, lines 12-15. The pH of the grease can be tailored to be compatible with the metal surface which is contacted with the grease or gel. See column 5, lines 59-60. The pH adjustor of Heimann is an alkali silicate such as sodium silicate. The grease will typically have a pH that ranges from about 7 to about 14 as set forth in column 6, lines 2-3. The addition of conventional additives is taught in column 8, lines 5+.

The examiner maintains the position that a person having ordinary skill in the art, armed with the disclosure of Heimann, would have found it obvious to add a pH adjustor to the grease composition of Yokouchi in order to adjust the pH to "about 7 to about 14" and tailor the grease to be compatible with the metal surface which is contacted with the grease with a reasonable expectation of enhancing the corrosion resistance of said composition.

Applicants argue that:

"The amended claims call for a pH adjustor for adjusting a hydrogen ion exponent pH of the grease composition within a narrow range of 5 to 9.6 for use in combination with the specific grease composition of the invention. The broad range of 'about 7 to about 14' disclosed by Heimann does not describe the narrowly claimed range. Furthermore, Heimann bridging cols. 5-6 also does not disclose the amount of the pH adjustor as required by amended claim 18." And that "...Yokouchi does not teach or suggest a grease composition comprising a pH adjustor, as recited in Applicants' claims 18-20. On the other hand, the grease compositions of Heimann et al and Yokouchi sufficiently differ such that

one skilled in the art would not contemplate addition of a pH adjustor to the grease composition of Yokouchi with a reasonable expectation of success.”

This is not deemed to be persuasive because, as set forth by applicant, Yokouchi teaches the addition of amine compounds. A suitable pH adjustor of the claims is an amine compound which is broadly selected from primary to tertiary amine compounds, each hydrocarbon group of which has 1 to 24 carbon atoms. The examiner is of the position that the amine compounds of Yokouchi, although taught as antioxidants, must also have some functionality as pH adjustors. Further, as set forth above, the reference to Heimann teaches that the pH of grease compositions can be tailored to be compatible with the specific metal surfaces with which the greases comes into contact. Accordingly, it would have been obvious to one having ordinary skill in the art to adjust the pH of a grease composition to “about 7 to about 14” and tailor the grease to be compatible with the metal surface with which it is contacted with a reasonable expectation of enhancing the corrosion resistance of said composition. The amended claim range pH value of 5 to 9.6 overlaps the pH range of the grease composition of the prior art of about 7 to 14.

***Claim Rejections - 35 USC § 103***

Claims 18-20 are also still rejected under 35 U.S.C. 103(a) as being unpatentable over Naka et al (5,728,659) in view of Heimann et al (6,010,984) and Yokouchi et al (JP-A-9-169989).

Applicants’ arguments filed 05 December 2007 have been fully considered but they are not persuasive. As previously set forth, Naka teaches a grease composition for a rolling bearing comprising 10 to 60 parts by weight of a mixture of diurea compounds as a thickener based on

100 parts by weight of a base oil. See column 2, lines 13-44. The base oil used in the grease is not particularly limited, and any oil used as a base oil for a lubricating oil may be used as set forth in column 5, lines 9-11. Base oils having a kinematic viscosity of preferably 40 to 400 mm<sup>2</sup>/s, more preferably 60 to 250 mm<sup>2</sup>/s, most preferably 80 to 150 mm<sup>2</sup>/s at 40°C is preferred. See column 5, lines 11-18. The grease composition may optionally contain publicly known additives in order to further improve its properties as set forth in column 7, lines 31-33. These additives may be used alone or as a combination of two or more kinds. Suitable additives include metal soaps, amine antioxidants and dithiophosphate compounds which act as extreme pressure agents and antioxidants. The amount of the additives to be added is not particularly limited, but usually not more than 20% by weight of the grease composition as set forth in column 7, lines 42-47. Naka differs from the instant claims in not teaching the addition of a pH adjuster and inorganic particles having an average particle size of 2 micrometers or less.

Heimann et al [“Heimann”] and Yokouchi et al [“Yokouchi”] are relied on as outlined above. The examiner maintains the position that it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a pH adjuster as taught by Heimann to the grease composition of Naka in order to adjust the pH to “about 7 to about 14” and tailor the grease to be compatible with the metal surface which is contacted with the grease with a reasonable expectation of enhancing the corrosion resistance of said composition. Additionally, it would have been obvious to add an inorganic filler as taught by Yokouchi in order to reinforce the gel structure and film-forming properties of the grease composition.

Applicants argue that:

“...the disclosure in Heimann et al in no manner leads one skilled in the art to employ a pH adjuster in a grease composition of a rolling bearing, let alone a pH adjuster for adjusting a

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hydrogen ion exponent pH of the grease composition within a narrowly claimed range of 5 to 9.6 (as claimed in claims 18-20) and in an amount of 0.01 to 12% by weight as required by amended claim 18.”

This is not deemed to be persuasive because, as set forth above, Naka teaches the addition of known additives such as amine compounds and metal soaps in column 7, lines 31-47. A suitable pH adjustor of the claims is an amine compound which is broadly selected from primary to tertiary amine compounds, each hydrocarbon group of which has 1 to 24 carbon atoms, and an organic acid metal salt. The examiner maintains the position that the amine compounds and the metal soaps of Naka must also have some functionality as pH adjustors. Further, as set forth above, the reference to Heimann teaches that the pH of grease compositions can be tailored to be compatible with the specific metal surfaces with which the greases comes into contact. Accordingly, it would have been obvious to one having ordinary skill in the art to adjust the pH of a grease composition to “about 7 to about 14” which overlaps the amended claimed range of 5 to 9.6 and to tailor the grease to be compatible with the metal surface with which it is contacted with a reasonable expectation of enhancing the corrosion resistance of said composition.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M. McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ellen M McAvoy/  
Ellen M McAvoy  
Primary Examiner  
Art Unit 1797

EMcAvoy  
February 13, 2008